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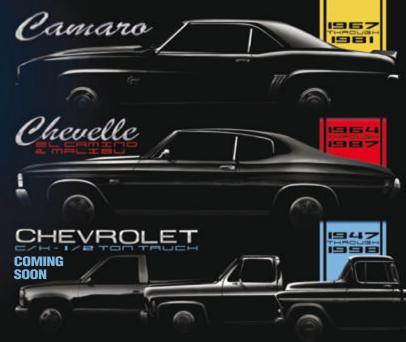
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# **FEATURES**

**MODEST MADNESS** 

The Ringbrothers might not have much attitude, but their 997-horsepower Chevelle makes up for it ... and then some

**BEYOND DESCRIPTION** 

Detroit Speed's 803hp Camaro is too exquisite for words or pics. We give it a go anyway

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#### >> ON THE COVER

When you have two of the baddest Pro Touring muscle cars built to date in the same issue, the daunting task of choosing which one makes the cover is too much to deal with, so we put both the 1969 Detroit Speed-built Camaro and the Ringbrothers' 1966 Chevelle on the July 2015

Cover and TOC photography by **Robert McGaffin** 

# **DEPARTMENTS**

**SOUND ADVICE** Ban dust and noise thermal acoustically

**DRUM BEATS** Upgrading a 1965 Chevelle to modern four-wheel disc brakes

FIRING UP Sifting through the many, many high-performance TV shows

**FIRING BACK** You said it, we print it.

STRAIGHT LINE **SPOTLIGHT** The baddest drag

**PARTS BIN** Things you need for your ride

**READERS' RIDES** It's all about you

**JUST SAYIN** Guest columnist Mary Pozzi acts as gearhead Den Mother to protect one of our own



# FIRING

Nick Licata NLicata@enthusiastnetwork.com



# TV Auto Show Overload

**They are** everywhere and impossible to ignore. There is no escape as they drive their way into our living rooms. What is this "they" I speak of? "They" are an over-saturation of hot rod and muscle car television shows consisting of the same super-tight-deadline-to-get-this-over-the-top-ride-finished-and-to-the event-or-auction-or-the-world-will-end scenario. We've seen the same "dramatic" storyline since Boyd Coddington and his tumultuous crew laid down the template on American Hot Rod over 10 years ago. At about the same time we got a weekly dose of the Teutul's – both Jr. and Sr. – profanity-laden verbal tirades on *American Chopper*, but eventually that little family feud got old – beat to death, actually. Even so, a variation of the show went on to last for about 10 seasons – long enough for the Teutul's to uproot their business (Orange County Choppers) from a modestly sized motorcycle shop and relocate into a state-of-theart building large enough to store their laundry bags of cash right next to their million-dollar CNC machines.

It wasn't long before we were

bombarded with a slew of copycat shows. And to this day there are tons of 'em - all armed with a cast of automotive misfits hoping to become the next big thing. But you can't blame these guys. Once a show gets some decent viewership numbers and renewed for a season or two, in comes the money. The dollars generated from T-shirt sales alone can bring in enough money to pay the

shop's monthly bills, past debts, and close out their two-year old bar tab at the local watering hole.

Just ask Jesse James. His Monster Garage show was a huge hit and the vehicle for all those West Coast Chopper T-shirts we saw being worn just about everywhere. There was a time when you couldn't go to any Waffle House without seeing that iconic Maltese cross logo on someone's back – the cook included.

And today, with new television networks popping up, there are more car shows than ever. The Velocity channel carries a variety of these shows, starting with Wheeler Dealers, What's my Car Worth?, South Beach Classics, Inside West Coast Customs, Graveyard Cars, Classic Car Rescue, All

Girls Garage, Car

Fix, Restoration Garage, Naked

Speed, Overhaulin', Chasing Classic Cars, Dallas Car Sharks, and I'm sure there's more. Then you have the Discovery Channel, which is home to Fast N' Loud, Fat N' Furious, Misfit Garage, Lords of the Car Hoards, Vegas Rat Rods, Texas Car Wars, Highway to Sell, Chrome Underground, Rod N Wheels, and Street Outlaws.

And then there's MAV TV. My satellite provider doesn't offer that channel, but count them in for some dandies like Full Custom Garage, High-Tech Rednecks, Titan – American Built, and more.

Now, I realize there's a major battle for viewership, and each show has its own little twist that the producer conjured up to make his show different from all the rest, but in reality, they all

seem to fall into the same vat of over-

seasoned automotive goulash. And I get it, it's not that easy to whip up something different when you have dozens of "reality" shows elbowing their way through a crowded

Arguably, you could say all this competition for screen time is healthy for our industry. It shows that there's interest in what we do, and if it makes a few

guys a little money and gives them celebrity status, then so be it.

All I ask is that we try to tighten things up and allow only the "watchable" shows to make it through the audition process. I'm sure that's easier said than done, but when it comes to these auto-based "reality" shows, let's whittle it down to, say, less than 20.

Oh well, gotta go. Looks like Farmtruck is about to take a fistful of cash from another unsuspecting Lamborghini owner.

Street Outlaws. Now, that right there is some must-see TV.

You in?

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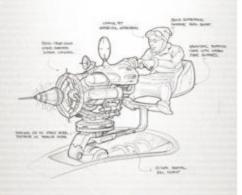




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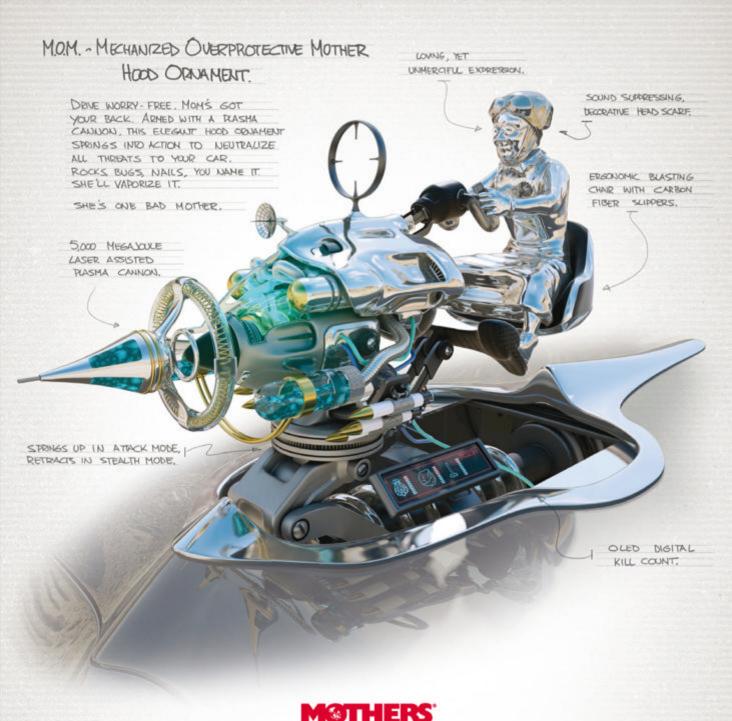
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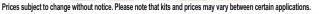












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#### By Nick Licata

In the February 2015 issue (Firing Up), I posed a question about what kinds of articles you'd most like to see in CHP. Basically, I was trying get a feel for what you readers are all about. I had my suspicions as I've been reading CHP for quite a few years, but I wanted to hear it from "the horse's mouth" so to speak.

Well, I was hoping to get a few responses, but what I didn't realize is how vocal you readers really are. I got a tremendous amount of emails with tons of great suggestions (a few of you even let me know the magazine's font size is too small, making the articles difficult to read. We'll work on that.) of what you'd like to see us do in the future.

I read every email and took into consideration your requests. Unfortunately, we don't have enough space to print every email, so here are a few of your comments and suggestions.

To those who took the time to write in, thank you for doing so. It really helps to stay in touch, so please keep writing in.

Ed.

Hello Nick.

What a great time. Daytona Turkey Rod Run all week and my February copy of CHP!

I read your first Firing Up column and gotta say, 'keep the magazine geared towards performance,' like the title says. Keep sharing the latest performance-based info on Chevys. One day, I'd like to drive my cars and maybe hit the high banks of Daytona and/or Sebring.

I was going to let my CHP subscription expire (I also get Super Chevy and Hot Rod), but when I read that you were taking over I changed my mind. In fact, I got a post card stating that when I originally signed up I chose to automatically renew for 24 more issues. No action required on my part. I'm in!

Good luck! I'm ready for the ride. Bill Salzman

Nick,

Shazam! You've appeared in my reading inventory again and I'm thrilled. I love these Chevy-based magazines because they keep me in the game on so many levels.

Best of luck to you and glad you're still hanging around putting out quality reading material about



interesting subjects. Kindest regards, **Byron Bates** 

Nick,

I think your target audience for CHP is the baby boomers. You may want to verify that with your own research. With that said, generally I quickly skim over anything LS-related or tied to a computer for tuning. I'd like to see classic '50's,

'60's, and '70's muscle cars along with old-time dragsters with Vertex Magnetos. The vast majority of cars at cruise nights have non-LS type motors.

Subjects that necessitate repeating like suspension tuning, tools to have, or just the simple stuff that make life easier to make our hot rods run and sound like it is supposed to.

Thank you, and looking forward to reading your column.

Daniel

Nick,

As a Chevy High Performance magazine subscriber, this is what I'd like to see: articles on how to make my rides better within a reasonable budget. Like most of your readers, I don't have tens of thousands of dollars to spend on my cars. I'm interested in how to make my leaf spring Nova handle better without spending \$5-10k on a new subframe coilover spring front and rear suspension. Notice I said better, not 2014 Camaro perfect!

A comparative carb test would be great. Seeing which exhaust system works best: H pipe or X pipe. A test of popular mufflers showing hp gain or loss would be fantastic.

I recently glanced through a circle track engine build article with what I'm guessing was a price tag of \$50k or better. That's a good example of what I'm not interested in.

Project cars are always good ... if kept within a reasonable budget.

Most of my interest is in older muscle cars but some new car stuff is good.

There are a lot of choices on what parts to put on our cars to improve them, and your readers look to magazines like CHP for help in making those decisions.

Thanks for listening Greg Chandler











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## FIRING BACK

Hi Nick,

Congratulations on the new job. It is great to have a fellow F-body enthusiast in charge. I am a longtime subscriber and a participant in all five Holley LS Fests. You have raced your black Camaro against my red one once or twice on the dragstrip. Your March issue had six pages of good coverage on the 5th Annual LS Fest, but nothing at all on my two favorites: Saturday's True Street Challenge and Sunday's

LSX Rumble, of which I was lucky enough to be the winner in 2014. I really enjoyed Kevin McClelland's Q&A and will miss him.

Best of luck, and I look forward to more great issues.

#### Harold Harned

What's up?

I've been reading CHP for quite a few years now, and I'll tell you what I'd like to see. Some autocross but more drag racing. Every other mag is beating autocross and Pro Touring to death. I like it, but I have subs to three other mags that just hammer the same, "watch us get a killer stance and modern handling out of our G-body with a full Pro Touring suspension setup every month."

Engines, I love em all! I'd like to see what you can do with the new powerplants. I'm especially interested in what can be done with Direct Injection. Just don't leave the classics on the back burner, because I'd love to see some old gassers. Keep up the event coverage. Oh, and if you get rid of Big Mac's tech column I'll cancel my subscription. Well, probably not, but that's how important he is to the mag.

Keep up the letters section, as I like to see what other readers are doing and are interested in. By the way, this is a Chevy performance mag and Chevrolet has always made some very nice trucks. Hint hint ...

Glad to have you aboard and I'm looking forward to seeing where the mag goes.

Grab a gear and keep it to the floor!

#### Joe Friedl Jr.

Nick.

The whole reason I subscribe to *CHP* is to read Kevin McClelland's Q&A. I have always assumed that the reason his space in the magazine is at the front (instead of the back) is that others shared my reason for subscribing.

You have lost a very important asset. This is a sad day.

Will I continue to subscribe to CHP? I don't know.

#### **Bob Haggard**

Nick,

Welcome to *CHP* magazine. In your Firing Up column in the February 2015 issue, you asked the readers on what piqued our interests.

Personally, I like a variety of articles when it comes to classic and late-model performance vehicles, and a variety of the various drag cars and Pro Touring cars. I would like to see more modified autocross type cars and Optima event articles. The new SCCA CAM (Classic American Muscle) class may be of some interests because it has emphasis on the Classic



Steve Tornari's 1967 Nova is loaded with subtle design elements that helped it win the Goodguys 2014 "Street Machine of the Year" honors. Among the visual highlights are ARP polished stainless steel fasteners. The award-winning build team at Miranda Built in Palm City, Florida says, "We used ARP fasteners every place we could."

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of the LS platform kind of begs the question as to why bother, but I'm sure many of us have well-built and performing old-school small-blocks and would love to see the improved driveability and performance in these upgrades. I think it would also promote the sport as motorheads realize that they can get more usability out of their cars!

Whatever way the mag decides to go, I'm on-board

Richard Johnson

American Muscle cars.

I do like the tech articles on the powertrain, suspensions, and bodywork. The electrical system articles are also informative.

I am not a big LS power conversion fan, but I don't have a problem with them. I am kind of an old-school of guy. If it came with a SBC or BBC, it should stay as a first-gen engine—not an LS. Don't get me wrong, the LS definitely has its place in the modern muscle car and I have two LS-powered vehicles.

I am almost done with updating/ modifying my '89 Corvette so I can be competitive in the Optima Ultimate Street Car events, in addition to the SCCA events.

Thanks for asking for the input. *Kenneth Allan Mitchell* 

Hi Nick,

You asked, I'm answering! Glad you have the new position at Chevy Hi, you'll do well with our "addiction."

Articles I would like to see are taking the first-gen SBC and doing tech articles on upgrading it with COP (Ed note: coil on plug) ignition and OE EFI port injection retrofits and using the OE wire harness with the needed modifications for the retrofit. I guess I would call it, the OE fuel injection conversion, a junkyard build!

I would like to see the comparison of fuel economy and performance from the carb to the upgrades. I know that the potential

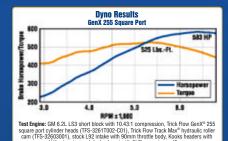
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# STRAIGHT LINE

# POTLIGHT

By Bruce Biegler



There is no chance of misidentification for racing fans when Tyrone Graham pulls his uniquely painted 1955 Chevy Top Sportsman car into the staging beams. Graham, who lives in North Carolina, campaigns a car that was first constructed back in 1997 by Wally Stroupe and raced by none other than Chevy Pro Mod legend Charles Carpenter. Since taking possession, Graham has proceeded forward with a number of upgrades, including a nitrous-injected Chevy engine. Graham's one-of-a-kind paint scheme, which boasts a rough texture and bleeding through rust look was done in conjunction with Chuck Chapman (Hickory, North Carolina). Possibly Graham's biggest claim to fame so far with his car might very well be back-to-back Quick 8 title wins during the Pinks All Out events held at ZMax Dragway in 2009 and 2010.

## Classic Continuum

→ Just like the Energizer Bunny, South Carolina's Monty Bogan Jr. continues to tick along with his very longtime tradition of drag racing Chevrolets. With over 100 and counting individual event victories throughout his racing career in both NHRA and IHRA competition combined, Bogan Jr. remains highly active primarily within the southeast region of the USA. A current focus for the four-time IHRA World Champion includes a 1967 Camaro, which he now races within Stock Eliminator in E/SA trim. This car, which has a 396ci engine and was acquired from northwest regional racer Sean Cour, was an original big-block, tilt-steering car equipped with a four-speed. Since converting it to an automatic, Bogan Jr. has coaxed it to a best run



of 10.62 at 121 mph, which is well under the 11.70 class index. For Monty, it is also one of two '67 Camaros that he campaigns—the other being an identically painted version for Super Stock.





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## STRAIGHT LINE SPOTLIGHT

## **Veteran Vette** Racer

→ Despite now being in his early 70s, Illinois-based racer Don O'Malley is still busy mixing it up within NHRA's Super Stock class ranks with a truly classic machine. O'Malley is back behind the wheel of what is now a very seldom seen car in the category: a 1964 Corvette. His present-day car is in fact the very same car that he got his start with in the sport back in 1969. Following a 15-year stint when he raced mostly late-model GM cars (Oldsmobile and Pontiac), Don went back to his roots when he reintroduced his Corvette back into class competition in 1999. Since then it has seen a number of upgrades, including some chassis reworking by PK Race Cars (Millersport, Ohio) to bring it up to its present day form. Using 327ci engine programs



(both L76 and L84 versions) and a Turbo 350 three-speed automatic transmission, Don's SS/IA-classed car has run a best of 9.70 at 137

mph. Both a racer and a tuner. O'Malley self-funds and self-maintains his machine out of his O'Malley Performance Shop in Decatur.



We probably don't fully realize all of its repercussions just yet, but last year's Stock Eliminator final round during the 60th Anniversary Chevrolet Performance NHRA U.S. Nationals at Indy was one for the ages. In a final round pairing featuring two 2014 COPO Camaros-when Bruno Massel defeated Joey Wilkes-it was truly history making, marking the first-ever national event level victory for a fifth-gen Camaro. The math now contained within annals of drag racing history will show that Massel's supercharged 350ci FS/A car recorded a winning 8.825 e.t. at 143.34 mph, compared to Wilkes' 396ci B/SA, which ran a 9.978 e.t. at 128.77 mph. That final round duel cumulated a truly massive Stock Eliminator program, which saw no less then 187 cars entered for the 128 available qualifying positions. Wilkes and Massel each entered eliminations with superb sub-index runs of -1.409 and -1.402 for the sixth and seventh positions respectively.

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The Ringbrothers Might Not Have Much Attitude, But Their 997-Horsepower Chevelle Makes Up For It ... And Then Some

TEXT: Stephen Kim + PHOTOS: Robert McGaffin



## **COVER RIDE**

no one's 5 feet 11 inches, but there sure seem to be lots of people out there that are exactly six feet tall. What are the chances? Interestingly, very few people make \$95,000 a year, but there sure are lots of folks that earn a cool \$100,000. What a coincidence. This peculiar phenomenon might explain why very few cars run 10.0s opposed to 9.90s at the dragstrip, and why certain wankers cite the useless advertised duration specs of their camshafts instead of the all-telling at-0.050 figure. Given the male ego's tendency to distort reality, it's downright shocking to see a horsepower rating of 997 on the spec sheet of a car as

utterly breathtaking as the Ringbrothers' 1966 Chevelle. Like seriously, if they claimed it made an even 1,000 hp, it's not like anyone on earth could actually feel the three missing horsepower. Honesty and modesty like that is hard to come by these days, but it's precisely why Ringbrothers'









latest creation looks like no other '66 Chevelle on the road.

Allow us to explain. Brothers Jim and Mike Ring have built many high-profile, award-winning muscle cars over the years, pushing the limits of the Pro Touring breed with each new project. An abbreviated list of accolades includes multiple Goodguys Street Machine of the Year awards as well as a Ford Design award at the 2009 SEMA Show. However, despite the national spotlight, they don't take themselves too seriously, and it's this modesty that both enables and inspires them to keep on truckin'. "There's so much talent in this industry that it takes a lot of effort as a car builder to be different. We go out on a limb sometimes and try things that are controversial, but pushing the envelope in order to

stand out means that you have to be willing to hit the dirt sometimes," Jim Ring explains. "Winning awards is an honor, but you still have to fix the manure spreader when you get back home. You're still no different from the next person, and you have to build cars because you're passionate about them, not for awards."

More often than not, the Ringbrothers' swing-for-the-fences

#### Modest Madness



approach has netted far more grand slams than strikeouts. This track record, combined with their downto-earth demeanor, is what convinced Chris McPhie to entrust Jim and Mike to build the Chevelle he always wanted. "I met Jim at the SEMA show in 2012, and we talked for what seemed like hours about the type of car I wanted to build. I had been looking for the right shop for several years, and this was the first time I had met a builder that wasn't cocky and arrogant, who mostly listened instead of doing the talking," Chris recalls. "Jim was intrigued, and when I called him a few weeks later I was surprised to find out that he remembered every single detail of our initial conversation. He took my vision for building a 1966 Chevelle and threw in his own ideas without ever knowing if I would call him again. That's the type of guy Jim is, selfless and driven to build your dream car with his skill set and artistry. It's a true gift."

Although Chris has owned everything from 1969 Camaros to Ferraris and Lamborghinis over the years, he's always had a soft spot for Chevelles. "When I was 14 years old, I convinced my dad to drive down from Ohio to Florida to pick up a 1970 Chevelle that my aunt and uncle were giving away. I felt like the luckiest kid on the block and figured I had two years to paint it and put some nice wheels on it before getting my license," Chris remembers. "The problem is that at 14 years of age you can't just let a hot rod sit in the driveway, can you? One day after school, I thought it would be cool to sit in the car and listen to the radio,



but that wasn't enough. I took the Chevelle around the block to see what it could do. The local police escorted me home, and not long after that the Chevelle was gone."

That was 1986. For the next 20-plus years, although Chris had the good fortune of owning some very nice exotic cars, he couldn't help but feel like something was missing. "The memories of that old Chevelle that never became a reality often crossed my mind. One day I vowed to get another Chevelle and build the car of my dreams from my earlier years," he explains. Like many Chevy enthusiasts before him, Chris was seduced by the clean lines of the '66 Chevelle body. After several years of searching for the right builder, work on Chris' dream car finally commenced in 2012.

Ringbrothers started out with a plain Jane six-cylinder car and hatched a plan to build a race car-inspired Pro Touring machine with the latest and greatest drivetrain and suspension components on the market. Oh yeah, the mechanical bits also had to get wrapped in the kind of meticulously fabricated custom sheetmetal skin that Ringbrothers is known for.

With projects of this caliber, getting the major mechanical hardware—as impressive as they may be—in order is often the easy part. To bring the Chevelle's floppy suspension into the modern era, the stock underpinnings were replaced with a Roadster Shop chassis that utilizes a C6 Corvette suspension up front, a custom fourlink out back, Baer six-piston brakes, Afco coilovers, and beefy splined sway













bars. To put the chassis to good use, Ringbrothers spec'd out one monster of an LS7 small-block from Wegner Motorsports. Based on an RHS block, the combo checks in at 417 cubic inches and utilizes Callies internals and RHS LS7 cylinder heads. A big Whipple twin-screw supercharger on top pressurizes the short-block to 15-16 psi, which is good for 997 horsepower and just a smidgen under 900 lb-ft of torque. A Bowler-fortified Tremec six-speed manual trans is tasked with processing all that power, which it feeds rearward to a Johns Industries 9-inch rearend fitted with 35-spline axles. Sticking it all to the pavement is Michelin Pilot Sport rubber wrapped around HRE wheels (19x9.5 front, 20x13 rear) custom built to Ringbrothers' specifications.

Compared to bolting up turnkey suspension and drivetrain components, fabricating eye-popping custom sheetemetal is a painstaking affair requiring thousands upon thousands of hours of labor. The cosmetic changes are immense, infusing a mix of race car and exotic car flair into one of the best-looking Chevys of all time. "Even when you narrow the bumpers on these cars, they still stick out too much. In order to tuck them up like we wanted to, we cut the fenders off right in front of the wheels, about half way down," Jim explains. "The fenders now sit on top of the front bumper. The hood, trunk, decklid spoiler, and front and rear bumpers are custom carbon-fiber pieces. For each of these parts, we first built a prototype out of sheetmetal, bodyworked them smooth, made molds from them, and then hand-laid the carbon fiber. Each of these parts are now available to anyone through our parts catalog."

But wait, there's more. "We lowered the rocker panels 2 inches and ran the panel all the way through the side of the car, from the front of the rear wheel to the back of the front wheel. This really cleaned up the lines of the car and got rid of the ugly pinch welds," says Jim. "On a stock Chevelle, there are all kinds of messy lines where the front fenders meet the doors, so we cleaned all that up. That straightened up the line on the door that comes off the A-pillar. In the rear, we stretched the quarter-panels downward to line up with the rockers more evenly. The taillight buckets are off of a fifth-gen Camaro, and then we built custom lenses to fit inside them. One thing

that's always driven us crazy are side mirrors because there's nothing out there that fits the theme of cars we build. This time, we spent 80 hours building custom mirrors out of flat sheet aluminum. We even integrated a camera in the driver-side mirror."

Considering the painstaking effort that went into the rest of the car, the interior couldn't disappoint. The end product looks more like the cockpit of an F-22 than the interior of a muscle car. "Chris insisted on having metal seats, so we built custom seats that mimicked the shape of a Recaro. The only parts of the seat with padding are where the seats touch your body," Jim explains. "The metal seats set the tone for the rest of the interior, so we had to keep it on the raw side. That's why there's no carpet. We hydro-dipped the floor, console, seat pans, and inside of the trunk to add texture. To make it look like there are rubber mats on the floor, we custom machined metal inserts and had them powdercoated. The shifter, blinker arm, and gauge pod were custom machined as well."

After 18 months of hard work, Jim and Mike unveiled the Chevelle at the 2014 SEMA Show. As is usually the case with Ringbrothers' creations, it nabbed a bunch of awards, including General Motors' Best Chevy at SEMA award and the Goodguys Gold award. It also ranked as a Top Three finalist in the Battle of the Builders competition. Such resounding success aside, Jim and Mike will head back to their Wisconsin shop, and continue cranking out world-class hot rods that starkly contrast their modest and humble demeanor. Too bad more folks can't be like the Ring's. CHP



# **SUB-ORBITAL** FRAME

A New Front Suspension to Give Your Early Camaro/Nova Out-Of-This-World Handling

◆ TEXT & PHOTOS: Steven Rupp



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deal, but that's where any similarity

to the factory front suspension

ends. The suspension itself was

paper, which means it isn't just a variation of OEM geometry. Using

yet reasonably priced, front clip.

And while the performance of

Pro/Engineer software, the engineers

at Chassisworks were able to create

a modern, technologically advanced,

designed on a "clean sheet" of

e've heard it said that wheels make the car. But if you're going to log any serious highway miles, then it's really a car's suspension that determines if it's fun or not. Don't believe us? Well then hop out of your modern, rackand-pinion-equipped car and hit a mountain highway in a vintage, stockrestored Chevy. What you'll find is that it looks great but handles like a pigand not a particularly agile one either.

Thanks to the aftermarket, it's a fairly easy proposition to imbue our classics with modern road manners. One option is to upgrade the parts while still utilizing the stock subframe. Sure, the car will handle much better, but utilizing the factory frame means compromises need to be made. A better, though admittedly more expensive, option is to go with a complete aftermarket subframe. This approach gives better handling since the complementary suspension bits don't have to work

this subframe is on par with latearound the design and geometry of the GM frame. model Corvette-based systems, it One such system is Chris Alston's doesn't force you to run flat-face. high-negative-offset wheels. Prices Chassisworks' g-Machine subframe for 1967-'69 Camaros/1968-'72 range from around \$4,800 for their "value system" up to \$8,500 for Novas. Now, it's still a direct bolt-in their "ultimate Pro Touring system." But, keep in mind that there are myriad options available to tailor the subframe to both your needs and your wallet, so you might want to grab a notepad and hit their website. CHP





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#### Sub-Orbital Frame



O1 OK, so obviously the main player in the front subframe assembly is the subframe itself. The 1967-'69 Camaro/1968-'72 Nova Chassisworks subframe is larger and stronger than other tubular designs on the market. A lot of this is due to the massive 3x4-inch subframe structure at the critical chassis stiffness area from the crossmember rearward through the firewall mounts. The frame also incorporates all the necessary mounting points for items like bumper brackets and core support.



**02** The framerail design is completely enclosed, which adds strength, and each 'rail is assembled from four separate 12-gauge sheetmetal panels. The 'rail panels are CNC laser-cut and, once the contour bends have been made on their fully automated press, the panels are assembled using positioning features. They explained it as a three-dimension puzzle since the 'rail panels can only be fit together in the absolutely correct shape. Once in place, the four corner seams are welded with a continuous bead to completely bond the joint. The welds are so nice that even though they will sand them smooth (for \$375); we think you would be better off spending that cash elsewhere.



03 Installing the frame under the car was as straightforward as stuffing a stock frame under there. This is due to the alignment holes that duplicate the factory arrangement. Chassisworks also supplies a pair of CNC-machined alignment pins for even greater accuracy. Once both pins were in place we simply tightened down the bolts through our aluminum body bushings (PN 6816). They do offer urethane bushings for those who want to cut down on transmitted vibration a bit, but we sort of like it.



O4 Chassisworks' TIG-welded lower A-arms feature 1.25x0.156-inch wall steel tubing and 1x0.156-inch wall, multi-plane triangulated crossbraces. The CNC-machined weld eyes create a stable bushing housing that inserts into each arm tube and gradually tapers to match the outer tubing diameter. This eliminates fatigue points normally found in other "T"-style tubular bushing-housing joints. The geometry offsets the ball joint forward to improve static positive caster and it also places the shock very close to the spindle in a dropped position for better control. The lower pivot points are spread broadly apart, increasing performance while eliminating the need for secondary strut rods.

**05** The lower arm was then secured to the subframe using the unique pivot-stud hardware. This specially designed Allen-drive, beveled-head pivot stud threads directly into the q-Machine crossmember. The fasteners feature a thread-free 3/4-inch shank for



maximum shear strength and have a broad bearing contact surface that reduces wear. There's also a shoulder on the bolt that ensures the correct amount of bearing preload. The arm is further secured using oval-point set screws. Also, here you can see one of the rack mounts, which uses Chassisworks' interlocking-slot-tab technology. Self-fixturing female slots in the frame are used to properly locate mounts, which employ corresponding male tabs. They are then fused together using a spray-arc welding process.



O6 The upper arms may not look strong, but they are. Constructed from mandrel-bent, 1x0.156-inch wall steel tubing, with 0.875x0.156-inch wall crossbraces, they are TIG-welded into a triangulated design that is strong and allows for plenty of shock clearance. With the aid of a fixture, the tubes are seated into recessed faces along the ball joint housing to create an interlocking fit. On the geometry side, the arm provides positive caster upon installation by offsetting the ball joint rearward. The pivot bearings are self-lubricated and require little maintenance thanks to minimal linear resistance and zero deflection. And if they do wear, the arms are easily rebuildable.



O7 The use of CNC-machined billet steel allows Chassisworks to create A-arm mounts with specific areas of increased thickness for added strength. The fixed-axis pivot-pin design eliminates the possibility of shifting pivot shafts, has greater shear strength, and increases bending resistance. The increased rigidity of the design keeps the arm in place and the handling predictable. You can see the one-piece clevis shock mount, which has an integrated gusset resulting in a smooth look and a stronger mount that won't flex and cause a possible failure.



O8 Chassisworks' g-Machine sculpted two-piece spindles features a 2-inch-dropped ride height but are taller than commonly used OEM spindles. This provides a lower center of gravity and quicker camber curve for improved cornering traction. Made from high-strength ductile iron, cast for Chassisworks by a foundry with over 50 years of experience, yields an excellent strength-to-weight ratio. They also used finite element analysis (FEA) software to eliminate stress concentrations for even more durability under hard use. The spindle axles are machined from special high-strength alloy steel (tensile of 150,000 psi) then inserted into the machined upright, forming a shrink-fit pressed assembly.



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#### Sub-Orbital Frame

09 Most subframes utilize some sort of reworked OEM rack-andpinion, but Chassisworks makes their own. This makes for better quality and allows them to dial in the front suspension geometry by ensuring the correct hub-tohub width. The rack is mounted forward of the axle centerline (i.e., front steer) for more oil pan clearance, and the rack can rotate to help eliminate a sharp universaljoint angle and offer a bit more exhaust clearance. The rack is held to the frame by using interlocking billet mounts that won't flex under hard cornering.



10 One option we went with was Chassisworks' bump steer kit. This replaced the outer tie-rod with an adjustable billet steel sleeve and high-strength, Teflon-lined 4130 rod end. The tapered Grade 8 stud, along with a selection of shims, will let us vertically adjust the outer pivot point at the steering arms and correct any unwanted toe-in changes during suspension travel. With this kit there should be virtually zero bump steer in 6 inches of suspension travel.



11 Our subframe shipped with Chassisworks' new splined sway bar option. It's a 1.25inch diameter, 33-inch long gun-drilled bar, and we were pretty impressed with the bar and the hardware, especially the zinc-plated billet steel lever arms, which incorporates multiple endlink mounting holes. Teflon race, spherical-bearing endlink assemblies create deflection-free pivot points and help the bar react quicker and be more predictable. Endlink length is also adjustable to eliminate, or add, static preload.



12 The bar was mounted to the frame with billet aluminum bearing housings and 3/8-inch socket-head bolts. The low-friction bearings will allow the bar to pivot freely without introducing off-axis free play.











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#### Sub-Orbital Frame

13 | The billet aluminum hat and hub assembly helps to reduce weight and allow the individual components to be replaced if they become worn or damaged. The kit also included tapered Timken wheel bearings and 1/2x3-inch wheel studs.





14 To the Chassisworks' hats we secured the Wilwood 14-inch rotors using the supplied 12-point Grade 8 fasteners. The 1.25-inch thick rotors are directional-vaned, slotted, and finished in Wilwood's black E-coat. To create more surface area and maximize cooling, 36 individual "I"-shaped passages are cast internally into the rotor. The passages are also curved to increase airflow compared to standard, straight-vented rotor designs.



15 The Chassisworks spindles utilize a radialmount caliper, so the first step in getting the caliper in place was bolting the billet mount to the spindle. Since our Camaro is a long way from hitting the road, we didn't bother installing the six-piston Wilwood calipers yet.





16 When we are ready to roll the Camaro, we'll be installing these double-adjustable VariShock QuickSet-2 coilovers. They feature sophisticated shock valving with all-new, American-made components. One knob sets bump (compression) while the other sets rebound (extension). Internally, they have Deflective Disk Valving to eliminate spring fatigue, and the piston rods are made from 5/8-inch centerless-ground, hard-chrome steel. The design of the lower ring doesn't require a locknut, instead it's locked in place by two ball locks that press into the grooves on the reservoir body. Our starting point for testing will be the 2.5-inch ID, 9-inch long, 550-pound VariSprings.



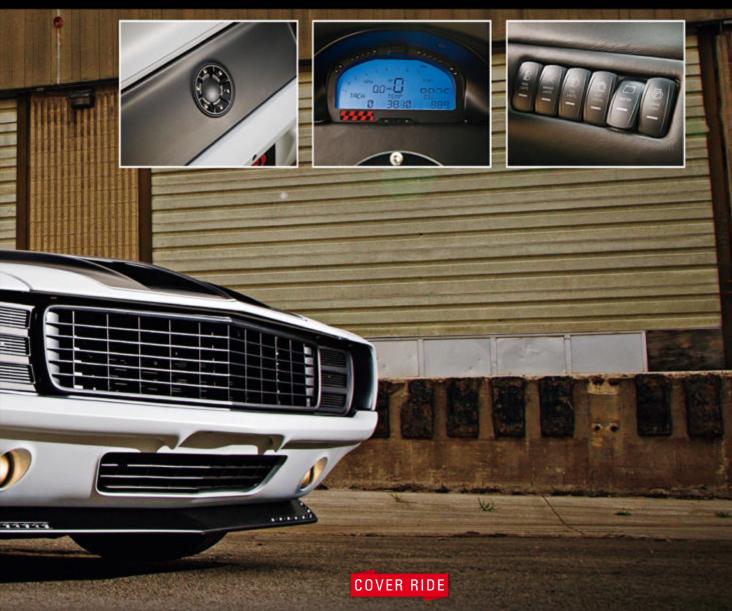
17 | With the actual subframe assembled, we were able to check out some of the other features. One that really caught our attention was the super nice billet engine mounts. Most subframes we've seen use a two-part deal with an adapter plate bolted to the engine block and, typically, a small-block mount to the frame. For easier engine installation, the passenger-side mount on the frame used slightly oversized slots to account for minor chassis variances. Chassisworks' subframes also allow for the use of small- or big-block motor plates and mid plates in addition to standard side-mount brackets.



# BEYONDDE



# 



my first draft. He kicked it back and demanded a rewrite. Punk. Can't blame the guy, though, because a mere nine words doesn't make much of a feature story, now does it? The first draft in question simply read: "Too badass for words. Refer to pics. The end." Granted that journalists have a reputation for being lazy, but laziness had nothing to do with compiling the shortest feature story in the history of mankind. Last we checked, Shakespeare and Hemingway aren't available for hire anymore and words can't adequately describe the experience of seeing Detroit Speed's latest creation in person.

#### **Beyond Description**





In an era when Pro Touring cars are all starting to look the same, the Camaro's satin white paint and body-colored bumpers are just as beautiful as they are ballsy. The contrasting black rollers and ever-so-slightly raked stance only intensify the visual pop. Nevertheless, pics can't adequately convey the experience, either. The more you learn about all the details and subtle touches that have been integrated into this machine, the more



badass it becomes. Suddenly, the missing 1,000 words from the first draft seem a heck of a lot more important.

Let's start with some specs, shall we? Under the custom-sculpted hood sits a supercharged Mast Motorsports LS7 packing 803 horsepower. Channeling the engine's 706 lb-ft of torque rearward to the 9-inch rearend is a Tremec TKO 600 trans mated to a Centerforce twindisc clutch. Predictably, the chassis and suspension boast hardware heisted



straight out of the DSE warehouse, and that's a very good thing. The goodies include a DSE front subframe assembly, a QUADRALink rear suspension, subframe connectors, and a mini-tub kit to make room for the behemoth 345mm-wide rear rubber wrapped around 19-inch Rushforth wheels. To counter the serious speed generated by such serious power and grip, Baer six-piston calipers are tasked with squeezing the 14-inch rotors.





Wise guys out there are probably thinking that the DSE Camaro isn't much different from your typical cookiecutter, bolt-on wonder. However, there's a big difference between merely bolting on six-piston calipers and hooking them up to a race-bred Bosch ABS system. Likewise, while the custom body mods may not stand out at first glance, the fabrication work they required was immense. The hood, for instance, is the product of two '69 Camaro hoods that have been welded together to extend the cowl section. It also incorporates a functional airscoop that provides additional clearance for the supercharger. Look closely, and you'll notice that the upper valance panel has been integrated into the hood as well. Popping open the one-piece lid reveals chassis stiffening bars that encompass the engine bay and tie into the main rollcage. The flattened firewall, scalloped inner fenders, functional ram-air induction system, and finned radiator shrouding is all custom as well.

Circling the car a few times gives the impression that while the body retains the essence of a '69 Camaro, its lines are cleaner and its proportions are tidier.

To achieve this effect. DSE extended the rockers and the front corner of the fenders, thus wrapping them into the pinch flange. Furthermore, DSE shaved the driprails and narrowed and tucked the bumpers. Granted that tastefully executed cosmetic changes are always welcome, the Camaro incorporates many functional enhancements as well. Since the stock '69 Camaro's faux quarter-panel gills are just plain silly by modern standards, DSE opened them up to help divert air to the brakes. A

custom bellypan out back and a custom lower valance and front spoiler (with integrated LEDs) up front smooth out the airflow beneath the car. Moreover, just like a new Corvette, small recesses built into the front of the quarter-panels replace traditional door handles and allow actuating an electric solenoid.

Despite the Camaro's savage performance potential, its interior is downright luxurious. The dash, center console, and panels were all custom fabricated from aluminum before M&M



#### Beyond Description



Hot Rod Interiors covered everything up in leather. Other highlights include Recaro seats, Schroth harnesses, RacePak instrumentation, a Billet Specialties interior, and a custom DSE rollcage and shifter. The list of interior doodads would be plenty impressive if it stopped there, but the DSE Camaro packs every creature comfort in the book: a thumpin' Sony stereo with Focal speakers, Vintage Air automatic climate control, GPS navigation, Bluetooth, fiber-optic lighting, a backup camera, and four-way power windows.

The end product is a devastatingly wicked creation that conceals its technical sophistication and craftsmanship in a deceivingly subtle yet elegant wrapper. It's part muscle car, part exotic car, part race car, and 100 percent badass. So what would inspire anyone to build such a machine? "Ever since I watched the movie Better off Dead when I was 10 years old, I've always wanted to build a first-gen Camaro someday. The lines on a 1969 Camaro are absolutely beautiful, and like nothing on the road today," says car owner Angelo Vespi. "Over the years, I've owned a 2010 Camaro, a 2009 Challenger, some late-model





Corvettes, and a 2014 Shelby GT500. I had to wait a long time to build my first muscle car, and Kyle and Stacy Tucker and the entire crew at Detroit Speed did a phenomenal job. This car rides and handles so much better than my GT500. There is no comparison."

If building such an extreme muscle car the first time around seems peculiar,

it's because that wasn't the original plan. "I just wanted a nice Pro Touring car with DSE suspension that I could autocross and drive every day," Angelo recalls. "As the project progressed and as I saw the caliber of work that DSE performed firsthand, the project snowballed into something much more extreme. We bounced lots of ideas off of each other, but I figured that since no one told Michelangelo how to paint, I'd just let the guys at DSE do their thing. This car isn't anything like I originally planned. It's so much better."

Evidently, we're not the only ones who think very highly of DSE's latest Pro Touring beast. It beat out 125 other hot rods to win the 2014 SEMA Battle of the Builders award last November. The competition's unique scoring system first enlisted select media experts to narrow the field down to 10 finalists, and then had the finalists cast their vote for the winner. In other words, some of the top hot rod builders in the country declared the DSE Camaro to be the best of show.

Like we said about 1,000 words prior, the DSE Camaro is still too badass for words. CHP



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## BUILT FOR **BOOST**

A Livernois Motorsports' 419-inch LS3 Stroker Long-block is the Foundation for 700+hp Aspirations

♦TEXT & PHOTOS Barry Kluczyk

hen it comes to bolting a blower on your Chevy's LS engine, it will hold up just fine with the low-boost configuration and tune that comes with most basic kits. The comparatively high compression ratio and the non-forged internals on the majority of factory LS engines generally means boost must stay down in the 5-8 psi range to keep everything safe and detonation-free.

While the extra 100-125 horsepower that a bolt-on supercharger delivers is plenty of additional kick for many owners, there's always the enthusiast who wants more. Lots more—and that means the engine's foundation requires fortification to contain its guts when the boost level heads for double digits.

Detroit-area Livernois Motorsports (livernoismotorsports.com) has been in the business of building such foundations for more than 15 years now, and when it comes to forced-induction LS engines, they've got a lot of boost under their belt. That made Livernois the perfect source for a purposeful long-block assembly that would suit the needs of a street/strip supercharged engine that would see more than 10 psi of boost—and more than 700 horsepower.

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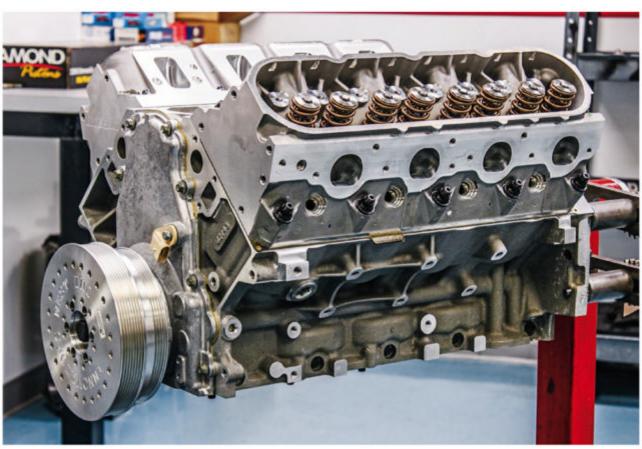
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More specifically, the engine would see more street duty than anything else. In fact, compromise-free street manners were second only to the desire for a big payday on the dyno. And yes, we have to admit cost would be a factor. There was budget for good parts, but as we said, this would be primarily a street engine, so there was no need for a Pro Mod-level of unobtanium in the rotating assembly.

With those loose parameters. Livernois Motorsports' Andy Ricketts suggested one of their 419-cubic inch. LS3-based boost-ready Pro Series





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#### Built for Boost



O1 The LS3 core engine was stripped down before the block goes through several machining operations to prepare it for the stroker rotating assembly, including align-honing of the main bearings and main caps. It's a common procedure that improves the strength, durability, and highrpm performance of the engine by ensuring the crankshaft bores are as straight as possible and within the proper specs for diameter and shape. It also allows Livernois to precisely set the main bearing clearance—a critical component for a long and happy engine life.

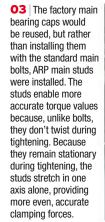
short-blocks and matching it with a set of CNC-ported LSA cylinder heads. Achieving the 419-inch (6.8L) displacement comes from replacing the original 3.62-inch crankshaft with a 4.00-inch-stroke crank and honing out the stock cylinder liners ever so slightly.

"Of course, the stroker short-block has all forged internals, which gives you the strength you're looking for, but our CNC-ported LSA heads optimize the setup with exceptional airflow characteristics that really make the most of what a supercharger can cram into the engine, while providing a superior casting to an LS3 head," says Ricketts. "If you're looking for 700-800 horses or more with higher boost levels, this a great way to go."

And what about the bottom line? Value is always subjective, but the cost for our boost-ready 419 stroker clocked in around \$11,750. Keep in mind that's for a long-block assembly, not a complete engine. There's still the matter of rifling through the sofa cushions and checking the coffee room snack machine for spare change to pay for the supercharger. So, no it's not exactly chump change, but the cost-to-benefit analysis suggests it's a strong value for the peace of mind and assurance that it will stand up to the cylinder pressures incurred with 10-plus psi of boost. For extra assurance, Livernois' Pro Series line of engines are rated to withstand up to 1,100 horsepower.

We hope to put that assurance to the test soon. In the meantime, check out the accompanying photos to see what went into our blower-capable, stroked LS3. CHP

O2 Achieving the 419-cubic-inch displacement couldn't be done by stroke alone, which would take the engine to 415 cubic inches. The extra four cubes comes from a pretty standard honing of the iron cylinder liners-a job that ensures proper clearance for each piston as well as a great surface for ring seating.









O4 Manley forged H-beam rods and Livernois proprietary ceramic thermal-coated pistons are at the heart of the rotating assembly. The coating reflects heat and reduces heat soak on the pistons. The compression ratio for this forced-induction combination comes down nearly half a point, from 10.7:1 to about 10.3:1. That will work toward keeping detonation at bay under high boost while keeping the engine responsive under boost-free operation, such as cruising and light throttle.

**06** A Livernois-specific 4340 non-twist forged crankshaft provides strength at a moderate price. It's heat-treated, stressrelieved, shot-peened, and nitrided for durability under boost. It's also Magnafluxed from the factory to ensure its strength.



05 The piston rings are optimized for a supercharged engine, too, with a stainless steel top ring that's strong and helps seat quickly in the cylinders. The second ring is a cast iron torsional taper face and the oil ring is a three-piece flex vent



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#### **Built for Boost**



**O7** ARP connecting rod bolts provide great strength for the intense cylinder pressure and heat generated under boost. They're made of upgraded ARP2000 chromoly steel and are heat-treated before the threads are rolled into them. By some measures, they're up to five times stronger than stock fasteners.



**O8** Livernois Motorsports notches the bottom corner of each cylinder to provide adequate clearance for the bulkier rods on the longerswinging stroker crankshaft.



O9 Livernois uses a Melling Select High Volume oil pump for the build to ensure proper oiling under all conditions, especially under boost at high rpm.



10 Livernois' custom-grind 2C-HL (high-lift) camshaft got the nod for valve actuation. The specs include 0.646/0.646-inch lift, 224/236-degree duration, and a comparatively wide 117-degree lobe separation angle (LSA), which is ideal for a supercharged combination that doesn't need the scavenging that comes with the valve overlap of a tighter LSA (see sidebar).



11 The heads are also Livernois' in-house creation. They are Stage 3 CNC-ported versions of the GM LSA head. Importantly, Livernois starts with a set of brand-new heads, so there's no concern about "seasoned" parts, and there's no core charge.



12 The heads are five-axis CNC machined to enhance airflow. The L92-type intake ports are carved out to enable a 360-cfm flow rating, which allows the engine to process as much airflow as a supercharger can cram into it.



13 Large, 2.16-inch stainless intake valves and 1.59-inch exhaust valves usher the air charge in and out of the heads. The combustion chambers are left at their original 68cc volume.



14 While many LS combinations these days run lighter beehive-style valvesprings, Livernois uses super-strong USA-made dual-coil springs that are good to about 0.690-inch lift. Valvetrain mass is kept to a minimum with chromoly locks and titanium retainers.





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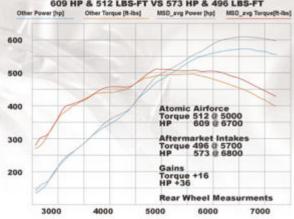
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#### Built for Boost

15 Maximum cylinder sealing is a must with a high-boost supercharged engine, and to that end OEM LS9 multi-layer steel head gaskets are used. These gaskets provide two additional layers compared to their LS3 counterparts, ensuring the best possible seal available for a high-boost application.



16 As with the main bolts, the standard head bolts are swapped in favor of ARP head studs for more accurate torque specs.



17 A custom, 10-percent oversized damper from Innovators West incorporates an eight-rib pulley for the blower belt. A steel hub resides inside of the lightweight aluminum case, along with a free-floating wet friction clutch pack that uses spring-loaded inertia rings to dampen crankshaft harmonics.





18 Here's the assembled long-block, ready and waiting for the force-feeding of a supercharger. It's a comparatively straightforward combination that should deliver exceptional strength under the mid-level boost planned for it. The bottom line for that strength was \$11,750.



19 A similar combination for a Livernois Motorsports customer matched the 419 stroker and ported LSA heads with one of Magnuson's Heartbeat superchargers. With methanol injection and a stout fuel system, the setup delivered 733 rwhp and 663 rwtq. That bodes well for our project engine.

The right camshaft is crucial for optimizing the performance gains delivered by a supercharger. And while different engines of different displacements and rpm ranges will deliver unique performance characteristics, there are a few guidelines and tips to keep in mind when spec'ing a bumpstick for your blower engine.

Generally speaking, you need more duration in a naturally aspirated application than a supercharged engine operating at the same rpm. However, the blower camshaft should deliver more exhaust duration than the stock camshaft's intake/exhaust ratio to help evacuate the

greater exhaust gas content of the boost air charge. A blower camshaft does not need overlap to provide a signal from the exhaust to the intake, so it typically has less overlap.

Because charge is lost through the exhaust when both valves are open (overlap)—and scavenging isn't required—optimized blower cams typically have a wider lobe separation angle. The side benefit is a smoother-running, easier-driving engine on the street.

With centrifugal superchargers, a smaller intake profile helps maximize low-speed torque, but it is matched with a larger exhaust profile to reduce exhaust pumping loss at higher rpm.

With positive-displacement superchargers such as Roots- or Lysholm-style, low-speed torque is generally not a problem, so a "larger" camshaft can be used because it doesn't have to "cheat" the exhaust side as much.

In other words, with centrifugal blowers, you can make torque with the camshaft and power with the blower; and with the positive displacement blowers, the blower delivers the torque, so make sure to give it enough camshaft to run at higher engine speeds.

Here's the other tip to keep in mind: Let a professional help choose your blower cam. The tech hotlines at all the major camshaft companies dole out such advice like coffee at Dunkin' Donuts. That's





what they're there for, so there's no reason to guess. And don't be shy about asking about the grind specs you spotted on a parts retailer's website.

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# Massive Metalwork Hides in Plain Sight TEXT: Ro McGonegal PHOTOS: Robert McGaffin



"I see lots of these Chevelles at shows and they are all the same, other than wheels and color," said Dave Jaeger. These words from a man who lists his occupation as "inventor." Certainly, such human beings have a different view of the world and how it works. They play off an exclusivity factor, something of their own making. They're not reinventing the wheel, but something close to it, something that shimmers from the metal. On close inspection and on viewing the silhouette from different angles, it's evident that Jaeger's '71 is different. By the saints, did he chop that top?





This automobile is a palette of intricate metalwork. Chris Smith, owner of Smitty's Custom Auto in Tiffin, Ohio, revealed the plan. "Dave brought us the Chevelle. He said that all of them look the same, so fix it. We were given a blank canvas, but it was his idea to lower the roof and do the six-port rear bumper." Indeed, the roof line is 1 1/2-inches lower than normal.

Chris and Tony Smith, along with Justin Thomason and Tim Kinn, did the customizing. They pie-cut the roof to accept the shorter convertible windshield and used an English wheel to stretch metal to produce compound curves and form sections that never were. They cleaned up the exterior, deleting the driprails, gapping the body, tucking the bumpers in, and "pocketing" the custom door pulls. The bumper is all-out, completely reshaped and V'ed down and complemented by Tony Smith's handformed grille section. They flattened and smoothed the firewall. They fixed a custom-built fuel cell under the package tray and put the fill entry through the quarter sail panel. The late Tom Dobroski (Millbury, Ohio) built the in-your-face six-taillight bumper. After all the rubbing was done, Smitty's Kinn applied the PPG Global custom Green Pearl.

Under the surface, the Chevelle simmers with completely new motive and chassis power. Smitty's laid the foundation with a formidable Roadster Shop chassis that included billet tubular control arms, spindles, RideTech adjustable coilover shocks, and rack steering. In the back, it was four-links and more RideTech adjustables. The axlehousing is a 9-inch type as fabricated by Moser Engineering, and it employs an Eaton Truetrac differential and 4.30:1 gears.

The wheel/tire combination is always critical to the outcome, and in the case of Jaeger's Chevelle, it's downright crucial. A









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deep negative offset and brushed-surface hoops are the perfect foils for the dark paint. In this application, they are Forgeline ZX3P in 18x10 and 20x12. The friction component is the latest BFG offering: g-Force Rivals that tape out at a squatty 275/30 and 315/30. Not far away, Smitty's installed 14-inch Wilwood discs at each corner-six-puck calipers in front and fourpucks following.

Jaeger stayed current in the power department. Lingenfelter Engineering tweaked the blower (different snout and crank pulleys, ported and polished air intake snout, flashed ECU, boost raised by 4 psi) of the Chevy Performance LSA crate engine. The system benefits further from a C&R water-to-air heat exchanger modeled after the one on the LS9 Corvette. Ancillary equipment includes a 7-quart Holley sump, a two-row C&R aluminum radiator core, Holley rocker covers, and a 140-amp Powermaster alternator.

Fuel is sourced from the custom tank



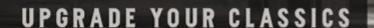
via a submerged Aeromotive pump. Waste is pulled out by Ultimate Headers that have been Jet-Hot-coated. The 1 7/8-inch primaries pour into a 3-inch stainless tract interrupted only slightly by Flowmaster 40s. It terminates in three big exhaust tips. At the wheels, this tidy bomb makes 540 hp at 6,200 rpm and 530 lb-ft of twist at 5,500 rpm. Transferring torque reliably is the job of the Tremec T-56 Magnum. It is preceded by an OE pressure plate and flywheel assembly under the Quick Time bellhousing. Jaeger changes up with a Bowler shifter as the grunt twirls tirelessly down the Dynotech propshaft.



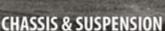
Jaeger takes command in well-appointed surroundings while perched comfortably on a Mercedes-Benz bucket. Heralded Fender Designs in Clarkston, Michigan, did the upholstery in an acre of custom-dyed leather. They followed with matching door and side panels and did the cut-pile carpeting and headliner to accompany. While the dashboard metal is unaltered, it has been fitted with an Iron Works billet gauge cluster that welcomes the cadre of Auto Meter informants, including the all-important manifold pressure gauge. Jaeger twists the Flaming River steering wheel atop the Flaming River tilt-column.

The gestation required two years, but when did Jaeger know the project was really finished? "When my 10-year-old grandson Cole David looked the car over and proclaimed, 'Pa Pa, I think you nailed it.' It makes a lot more sense when you know that this old A-body was a drag race car for a decade, complete with big-block, dings, bangs, and everything cobbled up." CHP

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## **SOUND ADVICE**

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**❖** TEXT & PHOTOS: **John Gilbert** 

erhaps our credo at Chevy High Performance should be, "We make all the mistakes so that you don't have to." Case in point is the Mexican beeyellow 1957 Bel Air coupe that has previously appeared in tech articles. The goal was simple enough; we'd gut its cheesy black TJ tuck 'n' roll job and slap in a totally bitchin new factory-correct interior kit from the folks at CARS Inc. It seemed like a solid enough plan, but that's where it all went bad. Day one into the gutting process with nothing left in sight but bare floors, we discovered we barely had floors. What at first appeared to be solid steel was in fact sheets of galvanized tin lathered into place with filler, brass brazing rod, and rivets. On top of all that was a 1/2-inch thick layer of black tarry goo.

In our defense, we absolutely intended for the '57 to go up on a lift first thing to inspect the floors from underneath, but there wasn't a lift available in the tech center at the time. Apparently, the next best thing was tucking the '57 between shelving where thousands of toilet paper rolls, as well as an old Suburban, are stored. The moral of the story without exception is to always raise the car high enough into the air to verify that the floors are good before considering interior work.

The silver lining is that we did discover an additional use for Dynamat in addition to keeping the heat, or cold, out when not wanted or to lower sound levels considerably, it works great to plug up rust holes. That said, whether one is installing Dynamat into a high-dollar build where finicky attention must paid to perform a clean installation, or just a good car that deserves to be made better, the following tips will make the job go a lot easier in much less time. CHP



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#### Sound Advice

02 Use a wire brush to loosen and remove rusty scale that if left in place will diminish adhesion and produce lumps in the Dynamat.



O3 A shop vacuum works better than using compressed air to blow loose, rusted scale out.



04 Using Eastwood's rust encapsulator directly over heavily rusted areas stops rust, and then finishing (sealing) with Eastwood's rubberized undercoating provides a waterproof surface.









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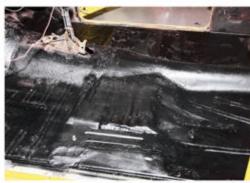
Massage into surface then buff for brilliant results.







#### Sound Advice



**05** We used CARS Inc.'s patch panels to section in good metal to rusted areas and restore seat bolt



O6 As a test-fit, we started by covering the largest area possible with an intact sheet of Dynamat. Notice the Dynamat sheet was preformed at this stage.



**07** The section shown of brown paper backing was peeled off, allowing the Dynamat sheet to be tacked into place and compressed with a Dynamat



O8 We lifted the Dynamat sheet upward and peeled away the rest of the backing, remembering that once the sheet is laid down into place you don't get a second chance.



09 We screwed a 5/16-inch Allen bolt into the seat bolt hole and then pressed hard onto the Dynamat to "locate" the bolt hole.



10 We then tapped a sharpened piece of tubing and cut a clean hole clear through the Dynamat.



11 | Half of a second sheet of Dynamat was needed to complete the driver-side floor. Note it was preformed before peeling the backing.



12 Notches were then cut in the Dynamat to clear the base of the gas pedal.



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Sound Advice





14 Next was to cover the driveshaft tunnel starting from the back seat area. Note the tunnel curvature was formed before peeling the brown backing paper.



15 Notice the tunnel section of Dynamat was butted up and tacked to passenger-side before removing the remaining backing paper and rolling the Dynamat over the tunnel to the driver-side.





**16** After the rear tunnel section was stuck into place, the final section to cover was the transmission tunnel.



17 With the Dynamat in place, and the backing paper still on, pressing down over the tranny tunnel will show the area that needs to be cut out for the floor shifter.





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RIDES

# COMMITMENT

## A Rare 1955 Chevy Handyman Wagon With a Modern Drivetrain and Suspension

TEXT & PHOTOS Chris Shelton

How hard are you willing to fight for a principle? I'm sure most of us can understand why Chad Terhar fought so hard for his. "I grew up riding in my parents' 1955 Nomad," he explains. "It's my dream car." But I don't think many of us can understand how hard Chad fought.

Chad may be idealistic but he's no fool; he understood that a 20-something probably should aim for something a little more realistic than a Nomad. Still, despite setting his sights on a Handyman wagon, all of his leads bore rotten tomatoes. "I decided it wasn't going to happen because of my budget and the amount of rusted-out cars due to our climate," he admits. In fact, he'd sort of given up on his principles when he came across a Handyman for sale on his way to a car show. His dad left the show to offer a second opinion. Chad brokered a deal with the seller. "The next day I was towing it home thinking to myself the whole way, 'I have a '55 Chevy!'"



The glow faded quickly though. According to Chad, "There was a lot more rust than I anticipated." How much more? "The floor, firewall, cargo area, rockers, quarter-panels, and passenger side of the roof were toast," he laments. Did he give up? Well, this is a story about principles. "I pulled the body off and broke the car down as far as it would go," he recalls. "I welded up a stand and started cutting." Unfortunately, he threw away about as much as he kept.

But at the end of the day ... big deal. Everyone knows a story like this one. In fact, some of us know the pain firsthand. But there's a fold that makes this story just a little bit different. "(I) got paralyzed in a motocross accident," Chad reveals.

Now we know what you're thinking: He sucked it up and kept fighting. And you'd be right. But only half right. Chad embarked upon this insane project after his injury. How's that for principle?

Perseverance only goes so far though; by pro standards, Chad's wagon was a goner. Even his wife, Tasha, pitched in when she saw what her man was up against. Only she worked smarter, not harder. She appealed to complete strangers halfway across the country.

Specifically, she appealed to the crew at PowerBlock. It produced Search and Restore, "a hot rod, feelgood, give-back show," according to its founding host and veteran car

# AKESASTAND



builder Tim Strange. For those who haven't seen the show, over a fourweek period Tim leads crews of fellow pro builders to transform lost causes into machines as worthy as the people who own them.

Chad's story particularly resonated with Tim. "I grew up with (Tri-Fives) too," he says. But more than that, Chad and Tim share a lifelong passion for BMX and motocross (some say he's too big and old, but nearly 30 years after the gate first dropped Tim still

shreds—in fact, he leads a factorysponsored BMX team). "I could really identify with him," Tim concludes. So he pitched the idea. The producers chose Tasha's appeal from a pool of 300,000 entries. Chad made it.

To meet the compressed work schedule, each production week corresponded with a build phase. "The first week was always teardown and mock-up," Tim explains. They started with the body.

To understand the extent of the

car's damage, consider that RockAuto supplied front fenders, floorpans, rockers, and quarters, and Danchuk supplied door shells. The body went back together with the slightest of changes, among them a shaved hood and a pop-up motorcycle-style fuel filler by the taillight. The crew rebuilt the body with all Danchuk hardware. Advanced Plating nickeled and brushed all trim, including factory stainless and Ringbrothers exterior door handles.

#### Commitment Takes a Stand

The resurrected body went on a Street Rod Garage SRG-Force chassis. It dispenses with the compromised GM front suspension for one with a lower roll center, a more favorable camber gain, and antidive properties. The nose achieves its stance in part with Wilwood Pro dropped steering knuckles. The rear axle consists of a Dutchman 9-inch housing, polished aluminum gearcase, 3.73:1 gears on a Yukon Gear limited-slip carrier, and Moser 31-spline axles. A Street Rod Garage triangulated four-link assembly locates it on the chassis. Both ends feature coilover dampers and 13-inch rotors and six- (front) and four-piston (rear) calipers. Speedway Motors supplied the stainless brake lines. The whole kit rolls on 18x7 and 20x9 Budnik Gassers wrapped in Toyo Proxes 215/40 and 245/35 rubber.













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#### Commitment Takes a Stand









The second-week crew finished the bodywork. "We wouldn't stop on day one until the car was roughed in and in primer," Tim maintains. They spent the rest of the week spraying the jambs, interior, firewall, and underside. Concurrently, they reassembled most of the car. The LS3 is a monster in stock form but the LS 376/480 cam that Pace Performance supplied as part of the engine and ECU package coaxes 465 lb-ft torque at 4,600 rpm and 480 horsepower at 5,570 rpm. An AutoRad four-core modular radiator, core support, and condenser cools it. Dan Taylor detailed the rocker covers with the car's Struggle graphics.

Through quiet-like conventional manifolds, the Hooker cast-iron headers still offer the performance of a tubular header. They descend into 2 1/2-inch steel pipes with MagnaFlow mufflers. Nitro Plate in Nashville coated them. Pace Performance also supplied the 4L80 transmission.

On week three the entire car got a

bath of Axalta base/clear urethane. The process reverted to reassembly for the fourth week. Ron Francis didn't just supply the Access XP-66 harness; he also sent Scott and Kyle Bowers to install it. The dash sports Dakota Digital VHX-series gauges and a 15-inch Budnik Gasser steering wheel on an ididit column.

The seats that Sears Manufacturing makes don't just look the part; their swivel bases simplify Chad's access. Kyle Hix and Ross Johns trimmed them and the fabricated interior panels in brown leather and suede. Blair Gehman installed Sidewinder hand controls that the team powdercoated to match the interior.

Though it sounds too incredible to be true, Tim's crews built eight cars in two seasons under that crushing schedule. The reality of rebuilding a car from almost scratch inevitably weighed heavily on the producers; it was only a matter of time until something unexpected threw off the

schedule. Ultimately they asked Tim if he'd change the format to show easier, more superficial builds.

"I told them that I'm the wrong guy," he says, explaining, "I didn't want my buddies who shut down their shops to pay for travel and food and donate their time to build something they weren't proud of." Like Chad, he fought for his principles even if it meant walking away from an opportunity in the entertainment business.

The details may differ, but in the end Chad and Tim have something in common: both took a stand for their principles. And while it's foolish to think that they wouldn't change a few of the details if they could, they both admit they're happy with the outcome. Consider Chad's wagon proof.

Life doesn't just go on for Chad Terhar and Tim Strange; they triumph over it. It's a struggle for sure, but so is life. You might as well stand for something and they stand tall. CHP





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## DRUM BEATS

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Upgrading a 1965 Chevelle to Modern Four-Wheel Disc Brakes

◆ TEXT & PHOTOS: Steven Rupp

Back in the '60s, drum brakes didn't seem that bad since most cars were hobbled with the same lack of stopping prowess. Fast forward a few decades and the fact that it takes you an additional 60 feet or more to stop than it does for the guy in front of you matters a bit more. Add in the fact that engines are putting out far more power and the need for better-performing brake systems become even more important.

Upgrading to disc brakes is a big improvement over four-wheel drums, but there are different levels of discs brakes. A basic "OEM-style" disc system will work fine, but larger rotors and calipers give another advantage; repeatability. Sure, any new disc-brake system will shave more than a few feet off the stopping distance, but the big payoff of a bigger brake kit will be the ability to pull off repeated heavy braking while better resisting brake fade.

Brakes work by converting forward momentum into heat energy, and this heat needs to be properly controlled. It has to be insulated from the brake fluid, and most importantly dissipated quickly from the rotors. This is where the larger mass and curved-vane arrangement of a high-performance aftermarket rotor really pays off. More mass means the rotor can hold more heat, while the design of the vanes helps move air through the rotor more efficiently than the less expensive factory-style rotors. Today, holes in the rotors are more for looks, but slots still play a role by providing smoother pad engagement and improved thermal balance across the rotor. The larger rotor diameter also

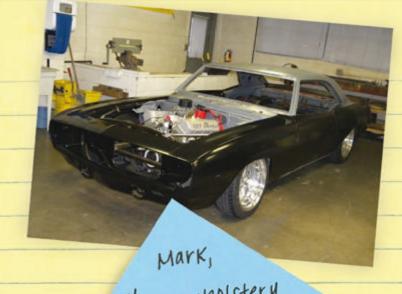
moves the caliper away from the hub, thus increasing its leverage. Now, one might think that all this weight might hurt other performance areas, and to some degree it does, but the benefits far outweigh the downsides.

Our 1965 Chevelle was stopping on the same drum brakes that it came with new, and driving around in heavy traffic resulted in quite a few "pucker up" moments. It was also still fielding the stock, single-chamber master cylinder, which isn't the safest idea out there. So, to get our Chevy up to 21st century standards we opted to toss on a set of Wilwood disc brakes and their latest tandem master cylinder. We figured we would rather spend the money here instead of repairing front end sheetmetal damage. CHP





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#### Drum Beats

O1 We've all seen old brakes before, so there's no need to dwell here. In the case of this 1965 Chevelle they were the drum variety all the way around. To make a long story shorter, we simply removed the old parts.



**02** We also went ahead and replaced the drum brake spindles with some forged-steel disc brake versions (PN 910-34900, \$125 pair) from Speedway Motors. They came in raw steel so we taped off the pins and gave them a coat of black paint.



03 The caliper brackets from the Wilwood front brake kit were then bolted in place. In this way we were able to run modern, radialmount calipers on the original-style spindles.



04 The Wilwood forged hubs (PN 270-7037, \$135) are almost too pretty to hide behind the rotors. They came unassembled. So, before installing the bearings, we spun in the wheel studs.



**05** After packing the bearings with some high-quality grease, we slid the hub assembly onto the spindle and secured it with a castle nut and cotter pin. Keep in mind that the Wilwood kit doesn't contain the special washer or castle nut, so make sure you have them on hand.



06 | The new one-piece E-coated rotor was then slid over the wheel studs. The black coating was developed by Wilwood many years ago and has proven to be far more durable than zinc, especially under hard use. The coating on the rotor face, where the pads make contact, will be removed once the pads are bedded in.





07 The six stainless steel pistons in the forged Superlite 6R (PN FNSL6R, \$354) calipers use differential sizing to apply even pressure across the entire pad. This helps keep the pads from wearing at strange angles, which could shorten the life and performance of the pads. In case you're curious, the large piston is 1.62 inches, while the smaller ones are 1.12 inches for a total piston area of 4.04 inches.

08 We went with Wilwood's mediumduty BP-10 smart pads. They offer a good balance between high-performance stopping power and low-dust/low-noise street manners. If heavier track use is in your future, then we would suggest stepping up to their BP-20 pads.





### Drum Beats

09 With the pads loaded, we slid on the radial-mount caliper. The kit came with a pack of shims, which we used to make sure the caliper was centered over the rotor and spaced out the right distance. Our last step was to plumb in the brake lines.



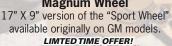


10 After repeating the procedures on the other side of the car, our front brakes were done and we were ready to move to the rear of the Chevelle.



11 To install the rear brakes, we had to pull the axles on our 10-bolt. That meant opening the differential. We dropped the pin to remove the C-clips, and at this point, we were very careful not to spin the axles.





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12 With the old drum brakes and axles removed, this is a great time to check your axle bearings and replace if needed. Ours were in great shape, so we moved along.



13 The rear parking brake assembly came as one unit complete with the caliper mounting brackets. This made installation a snap since we only had to secure it to the flange using four of the new bolts in the kit.



14 With that installed, we slid the axles back in place and replaced the C-clips and the pin.





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### Drum Beats



15 Before sliding on the new rotor, we installed this indexing ring that came in the kit.



16 The new drilled and slotted SRP performance rotor (PN 160-9815-BK, \$227) had a diameter of 12.19 inches and a thickness of 0.81 inches. The iron rotor had 32 cooling vanes and came fully E-coated. This will be a big step up from our worn drum brakes.



17 Most of a car's braking is done by the fronts, so the rear brakes don't need to be nearly as large. The rear kit came with a pair of these D154 (PN 120-11875-RD, \$178) twin-piston forged billet aluminum calipers. These are a great alternative to the cast-iron GM calipers used from 1978-'02, and they feature stainless steel (1.120-inch) pistons as well as hightemperature seals.



18 This single-reservoir master cylinder is how they rolled back in the mid-'60s, and it's the poster child for "putting all of your eggs in one basket." Aside from the safety aspect, we needed to switch to something more suitable for our new four-wheel disc system.



19 And that master turned out to be a Wilwood tandem 7/8-inch piece (PN 260-9439-BK, \$259). Aside from looking good, it will give us the safety of a modern two-chamber design.



20 We paired the black master up with Wilwood's new proportioning valve and mounting bracket kit (PN 260-13190, \$116). The kit makes installation a snap since it comes with the valve, mounting brackets, and the two pre-bent lines from the master to the prop valve.

All AFR heads come standard with: Lightweight bead lock 8mm valves that reduce valve float (Big Block Chevy has conventional 11/32 hardware), Premium Pacaloy racing valve springs, 100% Fully 5 axis CNC ported, 3/4" thick head deck, Viton oil seals (not cheap Poly Acrylic) and hardened Chrome Moly spring seats, not just shims. Includes adjustable guide plates for perfect rocker arm alignment.

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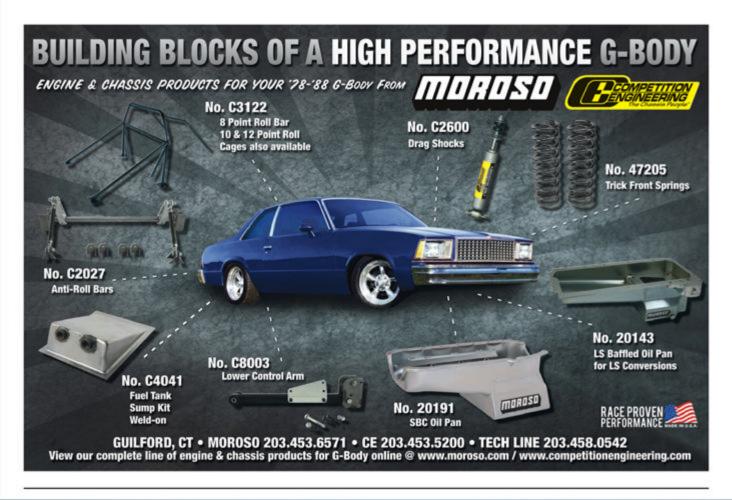


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### **Drop Your Fifth-Gen**

The Detroit Speed Inc. Front Drop Springs have an increased spring rate and lower the ride height to give your fifth-generation Camaro a more aggressive stance. They are a direct replacement and retain the factory isolators. The Detroit Speed Inc. Front Drop Springs (PN 031131) have a spring rate of 220 lb/in compared to 156 lb/in for the OEM V-8 SS and 145 lb/in for the OEM V-6. Get more information at **detroitspeed.com** or give them a call at 704.662.3272.

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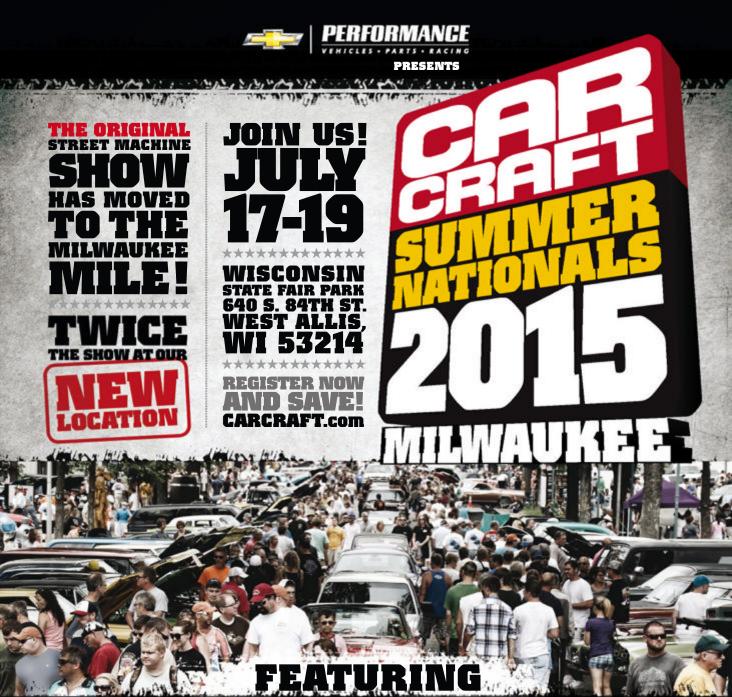
• Get complete control of your engine temperature. Derale Performance has integrated their high-performing Powerpacks with the ultimate fan controller. This patented PWM fan controller utilizes pulse width modulation to constantly adjust electric fan speeds from 0-100 percent, maintaining the optimal engine operating temperature. Made in the USA with built-in soft start technology, Derale has effectively introduced OEM reliability and functionality to the aftermarket. For more information call 323.266.3850 or go to derale.com.





## **Performance Spindle**

Speedway Motors' all-new G-Comp Performance Spindles feature tough, one-piece forged steel construction and are designed as direct bolt-ons for 1967-'69 Camaros, 1964-'72 Chevelles, 1968-'72 Novas, and equivalent GM platforms (A/F/X-Body). The G-Comp Performance Spindle's clean-sheet design includes a raised and relocated upper ball joint engineered to deliver improved negative camber gain and positive caster gain. G-Comp Performance Spindles also provide a 2-inch lower ride height and increased alignment adjustability. The spindles utilize bolt-on OEM steering arms and will accept OEM or aftermarket disc brakes designed to fit on OEM-style disc brake spindles. These high-quality G-Comp Performance Spindles are priced at just \$280 per pair. Call Speedway Motors at 800.979.0122 or visit them online at speedwaymotors.com.





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### Wired

Accel is proud to announce the availability of its Extreme 9000 Ceramic Boot spark plug wire sets. Designed to perform under the most extreme underhood temperatures. the Accel Ceramic Boot spark plug wire sets are ideal for a variety of street and race applications, especially vehicles with tight header clearances and limited engine bay space. The wire sets feature ceramic ends capable of withstanding temperatures up to 2,000 degrees F. The Extreme 9000 wires also feature double silicone protected 8mm Ferro-Spiral core construction with stainless steel terminals to deliver the fastest, most powerful spark while maintaining the highest level of RFI/EMI suppression. For more information visit accel-ignition. com or call 216.658.6413.

### Performance Online's exclusive 1962-'67 Chevy II Nova billet aluminum adjustable shock towers are made from T6061 aluminum and offer increased strength and lightweight design (3 pounds per pair). Made in the USA, the adjustable tower allows over 2 inches of adjustment to dial in your Nova's front end rise during hard acceleration. Limiting rise helps eliminate the extreme

camber, caster, and toe-in changes. The kit comes fully polished and includes billet aluminum towers, all mounting hardware, and a limited lifetime warranty. Visit performanceonline.com or call 714.278.0098 for more information.

# **G-Body Coilovers**

QA1 is excited to add a bolt-in rear coilover conversion kit for 1978-'88 GM G-Body vehicles to its line of Pro Coil Systems. The kit includes specially designed mounting brackets, single- or doubleadjustable aluminum shocks. springs, and all necessary hardware. The singleadjustable shocks provide 18 positions of simultaneous rebound and compression adjustment, while the doubleadjustable shocks provide 18 positions of compression adjustment and 18 positions of rebound adjustment, for a total of 324 possible valving combinations. These shocks also have a threaded body allowing for ride height adjustability from stock to -1.5 inches. To learn more call QA1 at 800.721.7761 or visit them online at qa1.net.



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# READERS' RIDES

# **Worldwide Appeal**

»Many of us here in America have become quite fond of the fifth-gen Camaro, but it also seems as though the popular late-model muscle car has gained traction in developing a worldwide following. Myron Chin from Auckland, New Zealand, sent us a few photos of his highly upgraded Cyber Gray 2011 Camaro. Built by Skid Row Motors, it features forged pistons, custom-ground COMP cam, PAC dual valvesprings, 81-lb injectors, and ADM Performance dual fuel pump system. But the main power provider comes by way of twin, bottom-mounted Garrett GT3583R turbos set at 12 psi of boost. The production is worth about 720 hp. "The 3-inch custom exhaust system





with the custom cam sounds great," boasts Myron. "And as far as I know, it's the only late-model, twin-turbo Camaro in the country.'

A McLeod twin-disc clutch manages the mayhem while a DynoTech one-piece driveshaft sends the raging twist to a Strange 9-inch rearend prepared with 3.70 gears and 31-spline axles.



Megan Racing provided the adjustable coilover suspension, and 360 Forged Mesh three-piece wheels play home to Pirelli P Zero rubber (265/20-21 front, 305/35-21 rear).

It's good to know the muscle car spirit lives on even in a country where golf and netball are two of the most popular activities.

# Turning the **Tables**

»Jen Mayes refers to this 1980 Camaro as her "second husband." To us, it's a bit refreshing to hear about the women getting into the action and showing everyone how to split time between home life and car life. Jen's second love is this '80 Camaro RS, and in her words is her "best friend." We're not sure how the hubby feels about playing "second fiddle" to a second-gen Camaro, but we can only hope he likes cars as much as his wife likes her F-body.









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## **READERS' RIDES**

# **Ice Cream** Cruiser

>> Spending the past 20 years drag racing a 1968 Camaro, Ken Staib had enough of the straightline life and picked up this 1967 Camaro RS/SS as a more driveable ride he could enjoy with his family. When he bought it five years ago, it had an automatic transmission and the car was set up more for drag racing than cruising. It wasn't long before Ken switched out the automatic in favor of a Tremec five-speed manual with a 12-bolt and 4.56 gears-something more driveable on the street. He then built a 496ci bigblock that makes over 600 hp to the flywheel on pump gas.



We suppose "driveable" is a relative term. "Basically, I wanted a car I could drive on nice days to cruises, car shows, and work. I also enjoy taking the family out for ice cream," said Ken. "I have two boys ages 11 and 7 and they both love riding in the car."

He kept the interior in mostly stock

form for comfort and to retain a bit of a "sleeper" vibe. The car rolls on Centerline wheels and uses Strange disc brakes up front for improved stopping power.

Ken has fond memories of his dad's 1967 drag Camaro, and hopes his boys will have a lifetime of good memories driving around town in the '67.

# Fancy That

>> W.G. Miller has no intentions of hiding the muscle behind his 1967 Chevy II. Although the car is 100 percent street legal, the Shelbyville, Tennessee, resident gets the car out to big money bracket races just about every weekend. The car retains all the factory sheetmetal and is powered by a 406ci small-block with "a little spray."

According to W.G., the car makes 722 hp and has run a

best e.t. of 6.15 in the eighth-mile. "The car is immaculate from top to bottom and is basically one of the loves of my life," he confesses. "My neighbor named the car "Fancy" after I did the restoration last year—the name just stuck."

We'd have to say the car looks damn fancy to us, and the fact that it runs low-6s in the eighth makes it even cooler.



Submit readers' rides high-res photos and information to chevyhi@enthusiastnetwork.com



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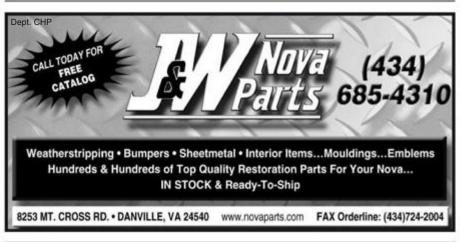


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# JUST SAYI

# Philip and the Motorcycle

Back in the day, I was employed as a parts runner for a local auto parts place and while my meager paycheck kept me in fuel and tires for my daily driver/autocross car, it was the customers, their cars, and the local repair shops we provided our goodies to that made each day gobs of fun and giggles. While I'm positive I was originally hired for my large ... um, frontal assets, I soon put the carspeak I'd learned from Auto Shop to use, got pretty good with sales and advice, and eventually added the title of "Manager" to my resume. Yes, this sounds very prestigious, but I must tell you that only two people worked there ... the owner and moi. Those six years spent hawking everything from points and condensers (remember those?) to high-dollar Weber carbs were some of the best of my life.

Our little store backed up to the best repair shop in town. This shop had the best techs, got the best customers, and was a family-run business that honored your word and kept your ride running right. We all were friends, talked shop, worked on cars together, talked about life, and became family. Hell, we were together six days a week for over eight hours a day so we had to get along. One of the techs next door was Philip.

Phil was about 19; very naive about life in general; had the shape of a human fireplug; and when in blue coveralls, looked very Smurf-like; and (I would bet the farm on this) had never, ever been on a real live date. He had a '68 Camaro. And while I got him to autocross it once or twice, it really wasn't his thing. Phil was fun, fair game to tease, and had this laugh that was a cross between a hyena and Roseanne horking up a bad clam. You know, the kind of laugh where you can't breathe and are hauling in air by the bucketful, all the while still howling with tears streaming down your face. That would be Phil. He'd come over all serious-like asking for some part for an old Humber Super Snipe (yes, this is an actual car name) and his Smurf-like self would leave totally wracked with man-giggles after I was through with him.

Being a fireplug had its benefits as we rarely had to pay for Pepsis. We'd see Phil crossing the parking lot and tell a customer, while pointing to some full-size behemoth, "See that guy over there? Bet you a soda he can pick up the front of that car." Of course the mark took that bet and we'd call Phil over and say, "Betcha can't pick up that car," and then stand back and watch. The process was amazing as there would be positioning with back and butt against the grille followed by hands getting a firm hold on the bumper, several dozen grunts that if you'd heard by themselves you'd think of major constipation, and finally ... a deadlift pick up of the entire front end of a 4,000-pound car! For our "special" pain-in-the-butt customers, we'd bet lunch!

But anyways ... the motorcycle.

See, Phil loved motorcycles more than life itself. He rode a lot, knew about bikes, the different models and engines, and was having a big-time lust-fest after this one particular bike he'd seen at the local motorcycle store. And don't ask me what kind of bike it was 'cause 1) I can't remember and 2) I know absolutely nothing about morotsiccles at all (see, I can't even spell it right). All I can remember is that it was expensive. Really, really expensive. On his lunch hour, Phil, in his Smurf-like coveralls, graced the showroom and expressed interest. The salesman looked him up and down, then said, "You can't afford it. We've had a lot of people looking at it." Phil politely asked why and was told, "You aren't the right person for this bike and we won't sell it to you." He then left, and with anger growing, returned to work red-faced, spewing some anatomical impossibilities, and swore he was going to buy that bike. And he could, too. He'd read about this particular bike, knew it was exactly what he'd wanted, and had saved ...

I thought for a bit and asked Phil what extras would be cool to have for that

"Phil was about 19; very naive about life in general; had the shape of a human fireplug; and when in blue coveralls, looked very Smurf-like."

bike. He gave me a wish list and I said, "Watch this." I called the store and got the salesman on the line, then told him the biggest whopper of a story I could fabricate. My "husband" (a prominent local lawyer who I namedropped with ease (more on him in a bit)) had been down there and seen this bike and as his birthday was in a few days, I wanted to surprise him with it. Of course, he wanted it with all the options, every little thing chromed and polished, uber-bling notwithstanding. And could I have them put a big, red bow on it for me? The price? No worries as I'd be down with a check in a couple of days.

Phil rapidly turned into a puddle of mush and laid on the shop floor in full hyena-howl as I hung up the phone. The next day, he came back from his lunch spent looking at "his bike" and told me that there was a big red bow on the seat and the sales guy said, "See, told you you weren't the right guy for this bike. A lawyer is getting it."

And about the attorney ... he's a customer that stiffed us for some Webers. I'd love to have been a fly on the wall when the bike dealership called his office and wished him a happy birthday. And by the way, when are you coming to pay for your motorcycle?

Mary is a part-time freelance writer and 11-time SCCA Solo National Champion.

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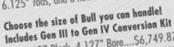
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